APRIL/MAY 2023

GECA14A/DECA14A — DIGITAL LOGIC FUNDAMENTALS

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

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1. Define DeMorgan's Theorem.

2. What are AND and OR Gates?

3. Define the term — Magnitude Comparator.

4. What is PLA?

5. Define the term — SR Flip-flop.

6. What s Flip-flop Excitation table?

7. Define the term — Microprogramming.

8. What is Scratchpad Memory?

9. Define the term — Instruction Sets.

10. What is Accumulator?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Simplify the Roolean Function to a minimum number of literals: $xy+x'z+yz$

Or

(b) Express the Boolean Function $F = A + B'C$ in a Sum of Minterms.

12. (a) Explain the working of Adders.

Or

(b) Describe briefly the functioning of Multiplexer.

13. (a) Discuss on the working of JK and T Flip-flops.

Or

(b) Explain the functioning of Ripple Counters.

14. (a) Describe the organization of Memory Unit and Bus.

Or

(b) Discuss on the Design of Shifter.

15. (a) Explain the Design of Accumulator.

Or

(b) Discuss on Instruction and Data Formats.

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SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the procedure of Number Base Conversions with examples.

17. Describe the working of Read-Only Memory.

18. Discuss on the functioning of Shift Registers.

19. Explain the Design of ALU in detail.

20. Describe the PLA Control and Microprogram Control.
